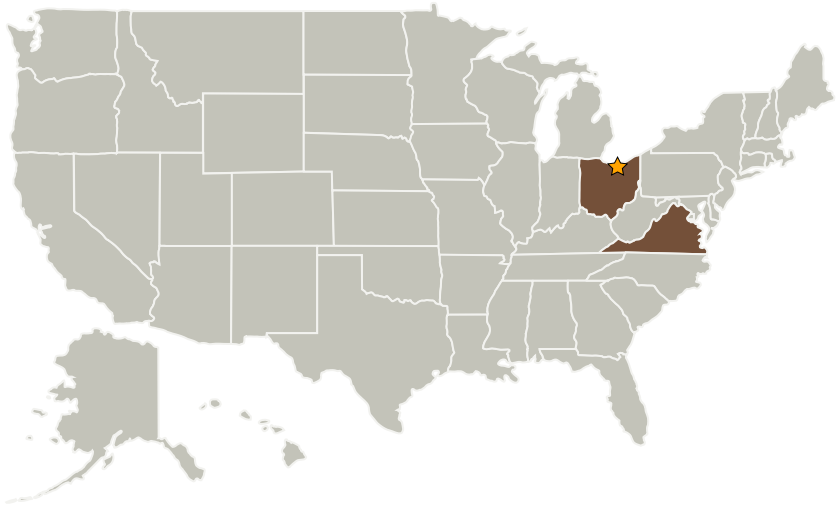
Automatic Dependent Surveillance - Broadcast Verification and Validation, Phase I

Completed Technology Project (2005 - 2005)

Project Introduction

Automatic Dependent Surveillance ? Broadcast (ADS-B) is an emerging Communications, Navigation, and Surveillance (CNS) technology that will vastly expand the state of the art in CNS in the National Airspace System (NAS). However, ADS-B is not currently secure and foolproof, and is currently vulnerable to abnormalities and deliberate contamination (spoofing). To address these problems, Metron Aviation, Inc. designs and develops an innovative software system that Verifies and Validates (V&V) the integrity of an ADS-B signal in real-time, independent of a secondary truth source of surveillance data. The system uses a suite of Kalman filters for short time horizon trajectory predictions, bearing signal tracking, a novel intent inference algorithm for reasoning about ADS-B intent data, and confidence assessment measures. The proposed technology addresses NASA's quest for technologies to harden aircraft CNS systems against abnormality and deliberate attack.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Glenn Research Center(GRC)	Lead Organization	NASA Center	Cleveland, Ohio
Metron Aviation, Inc.	Supporting Organization	Industry	Dulles, Virginia

Automatic Dependent Surveillance - Broadcast Verification and Validation, Phase I

Table of Contents

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Glenn Research Center (GRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Automatic Dependent Surveillance - Broadcast Verification and Validation, Phase I

Completed Technology Project (2005 - 2005)

Primary U.S. Work Locations	
Ohio	Virginia

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Jimmy Krozel

Technology Areas

Primary:

- TX16 Air Traffic Management and Range Tracking Systems
  - TX16.3 Traffic Management Concepts